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Washington, DC 20006-1109

EXAMINER

TRIMMINGS, JOHN P

ART UNIT	PAPER NUMBER
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2138

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/976,170

Applicant(s)

ZERBE ET AL

Examiner

John P. Trimmings

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-93 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 49-54, 57-60, 77-78, 80-84, 86-88, 90, 92 is/are allowed.
- 6) ☒ Claim(s) 1-48, 61-76, 89, 91, 93 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is in response to the applicant's amendment dated 11/18/2005.

The applicant has amended Claims 1, 16, 33, 40, 41, 43-45, 49, 61, 77, 80, 83, 86 and 89-93.

The applicant has cancelled Claims 55, 56, 79 and 85.

Claims 1-93 are pending.

Response to Amendment

1. As per Claims 1 and 89 under 35 USC 112 2nd paragraph:

In view of the amendments to Claims 1 and 89 in regard to the rejections of said claims under 35 USC 112 second paragraph, the examiner withdraws the rejections.

2. As per Claims 1, 3, 4 and 89 under 35 USC 103(a):

Applicant's arguments with respect to claims 1, 3, 4 and 89 have been considered but are moot in view of the new grounds of rejection (see below).

3. As per Claims 49, 77 and 90 under 35 USC 102(e):

In view of the amendments to Claims 49, 77 and 90, the examiner withdraws the rejections to said claims, and to dependent Claims 50-54, 57-60, 78, 80-82 and 90.

4. As per Claims 83 and 87 under 35 USC 102(b):

In view of the amendments to Claims 83 and 87, the examiner withdraws the rejections to said claims, and to dependent Claims 84 and 86-88.

5. As per Claim 92 under 35 USC 103(a):

In view of the amendment to Claim 92, the examiner withdraws the rejection to said claim.

6. As per Claims 61, 91 and 93 under 35 USC 103(a):

Applicant's arguments filed 11/18/2005 have been fully considered but they are not persuasive. The argument by the applicant in regard to the examiner's rejection of these independent claims was that Huysmans does not teach "a test mode", but the examiner disagrees. The inventor in this reference has achieved a very novel BER (bit-error-rate) testing system that is performing the test function at all times, including during normal operation. Huysmans, in the background and the summary of the invention, discloses that during the time periods that are not applied to data transfer, the invention performs a BER test. In other words, if the Huysmans system is not transmitting data (normal operation), then it is using the idle time to test for BER (a test mode). It is obvious to those of ordinary skill in the art that the "BER testing time" assigned to the Huysmans system could be defined as "a test mode". Huysmans invention permanently maintains "a test mode" at all times during normal operation during the idle frames, and therefore meets the limitation of "operating in a test mode"

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during these idle periods. The examiner maintains the rejections of these claims, as well as the rejections of dependent Claims 62-76.

Claim Objections

7. Claim 1 is objected to because of the following informalities: The claim, in the last line of the amended claim, uses the word, "may", which is not a positive limitation. One can interpret any limitation that uses this word liberally, allowing a reader to ignore the limitation. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1 and 89 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. There is nothing in the original disclosure supporting the contention that an adjustment to the device during test correlates to operation of the device in normal mode. The applicant has not shown proof of a relationship between adjustment during test, and improved normal operation.

Claim Rejections - 35 USC § 103

9. Claims 1, 3, 4 and 89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent No. 5726991, in view of Chao et al., U.S. Patent No. 6671847.

As per Claims 1 and 89:

Chen et al. teaches a method for evaluating/improving a digital signaling system (column 1 lines 5-43) comprising the steps of: generating a transmit repeating pattern in a transmit circuit (FIG.3 36 and column 2 lines 1-18); transmitting the transmit repeating pattern to a receive circuit (FIG. 4 and column 1 lines 57-67); generating a receive repeating pattern in the receive circuit (FIG.4 36A and column 2 lines 1-18); comparing the transmit repeating pattern to the receive repeating pattern (FIG.4 62 and column 2 lines 1-18) to obtain a comparison (FIG.4 56), but fails to further disclose adjusting a parameter affecting reception of the transmit repeating pattern at the receive circuit. But in the analogous art of Chao et al., this feature is taught in the Abstract and column 6 lines 11-55, where timing characteristics are adjusted at the receiver to determine operability of an I/O circuit (column 3 lines 38-48). In other words, Chao et al. improves on the testing of a circuit by adjusting timing parameters in order to weed out marginal circuits. And Chao et al., in column 27-63, cites the advantage of a much more accurate test mode for state of the art circuits, as compared to the prior art of testing using an external test system. One with ordinary skill in the art at the time of the invention, motivated as suggested, would have found it obvious to include the timing test method of Chao et al. in the test system of Chen et al. in order to improve circuit testing results.

As per Claims 3 and 4:

Dependent on Claim 1, the parameter adjustments are transmit and receive clocks. Chao et al., adjusts each clock separately (see Fig.5 and column 6 lines 11-55), and in view of the motivation for Claim 1, the claims 3 and 4 are rejected.

10. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent No. 5726991, in view of Chao et al., U.S. Patent No. 6671847 as applied to Claim 1 above, and further in view of Whitworth et al., U.S. Patent No. 6331787. The claim limits Claim 1 to a termination parameter adjustment. Whitworth et al., teaches such an adjustment in column 3 lines 65-67 and column 4 lines 1-33. Also, as described in column 3 lines 58-63, Whitworth et al. cites improved termination of transmission lines thereby. One with ordinary skill in the art at the time of the invention, motivated as suggested by Whitworth et al. to improve signals with low operating voltages, would combine all references to meet these needs, and so the claim is rejected.

11. Claims 5, 14, 15, 16, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent No. 5726991, in view of Chao et al., U.S. Patent No. 6671847 as applied to Claim 1 above, and further in view of Foland et al., U.S. Patent No. 5761212. The claims limit Claim 1 to an input receiver window parameter adjustment, done at the receiver. Foland et al., in an analogous art, teaches programmable windows (see Foland et al. Abstract and column 3 lines 30-48) being

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applied over a range, which then affect optimization of the quality of the channel under test. And in FIG.1, Chen et al. teaches the testing to occur within transmission paths (a common medium). And in column 2 lines 61-67, Foland states that channel quality can be continuously monitored and optimized in this invention, and so evaluation occurs at every iteration of the transmit signal. One with ordinary skill in the art at the time of the invention, motivated by Foland et al., would combine the art, and so the claims are rejected.

12. Claims 9, 10, 41 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent No. 5726991, in view of Chao et al., U.S. Patent No. 6671847, and further in view of Gauthier et al., U.S. Patent No. 5228042. As per Claim 9:

This claim limits Claim 1 to utilizing a shift register to generate the transmit signal. Gauthier et al., in FIG.1 shows such a register (FIG.1 10). Column 1 lines 60-67 and column 2 lines 1-15 describe the advantage of the invention being a way to test a communications channel by continuously comparing random data across the medium. One with ordinary skill in the art at the time of the invention, motivated as suggested, would have found it obvious to apply the random generator and comparator circuits to the same testing circuit of Huysmans and Chao et al., in order to provide the continuous data by way of the LFSR of Gauthier et al. at high data rates.

As per Claim 10:

This claim further limits Claim 9 to a linear feedback shift register. Gauthier et al., in the Abstract, describes such a register, and in view of the motivation of Claim 9, this claim is rejected.

As per Claim 41:

The claim, dependent on Claim 1, compares the transmit with the receiver data detecting non-repeatability. Gauthier et al., in FIG.1 shows the circuit that performs this function (FIG.1 60), and in view of the motivation previously stated, the claim is rejected.

As per Claim 46:

Dependent on Claim 1, the claim limits the transmit and receive circuits to being part of the same system. Gauthier et al. teaches this in FIG.1, and in view of the motivation of Claim 1, this claim is rejected.

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent No. 5726991, in view of Chao et al., U.S. Patent No. 6671847 as applied to Claim 1 above, and further in view of Sakoda et al., U.S. Patent No. 6230022. The claim limits Claim 1 to output drive level parameter adjustment. Sakoda et al., in an analogous art, teaches improved communication by controlling the power used within the signal being transmitted (column 2 lines 60-67 and column 3 lines 1-60) on a real time basis. In column 2 lines 53-58, Sakoda et al. describes the invention as improving on signal quality. One with ordinary skill in the art at the time of the invention, motivated to improve signal quality, would combine the art, and so the claim is rejected.

14. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent No. 5726991, in view of Chao et al., U.S. Patent No. 6671847 as applied to Claim 1 above, and further in view of John Brian Terry, U.S. Patent No. 6055297. The claim limits Claim 1 to a crosstalk cancellation parameter adjustment. Terry, in column 3 lines 32-52 describes optimizing a communications system by monitoring crosstalk. In column 2 lines 5-26, Terry describes the advantage of the invention as permitting new and old systems to be installed together. One with ordinary skill in the art at the time of the invention, motivated by Terry, would find it obvious to combine all references in order to improve crosstalk issues, and so the claim is rejected.

15. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent No. 5726991, in view of Chao et al., U.S. Patent No. 6671847 as applied to Claim 1 above, and further in view of Liao et al., U.S. Patent No. 6650698. The claim limits Claim 1 to an equalization parameter adjustment. Liao et al., in the Abstract, describes a system whereby equalization is performed on received data using a feedback coefficient that is constantly being updated. In column 1 lines 30-52, Liao et al. describes the advantage of the invention to be a decrease in errors in a communications system. One with ordinary skill in the art at the time of the invention, motivated by Liao et al. to improve the error rate in a communication system, would have found it obvious to combine the references, and so the claim is rejected.

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16. Claims 11, 31-35, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent No. 5726991, in view of Chao et al., U.S. Patent No. 6671847 as applied to Claim 1 above, and further in view of Maddux et al., U.S. Patent No. 6421801.

As per Claim 11:

The claim limits Claim 1 to transmitting the signal with reference to ground. In an analogous art, Maddux et al., shows that in FIG.4, D_{IN} is the data into the receiver, and the signal is referenced to VSS (ground). Also, advantages to Maddux et al., as described in column 1 lines 10-35, are the capability to control clock timing in order to improve circuit response. One with ordinary skill in the art at the time of the invention, motivated to improve circuit performance, would combine this art with Claim 1, and so the claim is rejected.

As per Claims 31 and 38:

The claims limit Claim 1 to transmitting the signal frequency as a multiple of the receiver frequency. Maddux et al., in column 5 lines 52-65 teaches this, and in the same lines describes the advantage as being easier to measure at the receiver side. One with ordinary skill in the art at the time of the invention, motivated to improve testing of the circuit, would combine the references, and so the claims are rejected.

As per Claim 32:

Dependent on Claim 31, this claim sets the two frequencies to an equal period. This is already taught by Chen et al., where the adjustable clocks that drive both circuits

may be a common frequency to each circuit (see FIG.2). And in view of the motivation previously stated, this claim is rejected.

As per Claim 33:

Dependent on Claim 31, this claim limits comparing patterns to multiple instances. This is already taught by Chen et al. in the Abstract and FIG.1 wherein the testing occurs in a free-running mode, and so continues for an indefinite number of instances. And in view of the motivation previously stated, this claim is rejected.

As per Claim 34:

Dependent on Claim 33, this claim limits adjustment of a parameter in the transmit circuit. This is already taught by Maddux et al., in the Abstract wherein the transmit clock is adjusted. And in view of the motivation previously stated, this claim is rejected.

As per Claim 35:

Dependent on Claim 33, this claim limits adjustment of a parameter in the receive circuit. This is already taught by Chao et al., in Fig.5 wherein the receive clock is adjusted by receive clock align/misalign. And in view of the motivation previously stated, this claim is rejected.

17. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent No. 5726991, in view of Chao et al., U.S. Patent No. 6671847 as applied to Claim 1 above, and further in view of John S. Prentice, U.S. Patent No. 6674998. The claim limits Claim 1 to transmitting the signal as a differential signal.

Prentice, in an analogous art, provides for improved phase error performance (column 2 lines 40-45) in differential signal propagation (column 1 lines 19-24). Therefore, one with ordinary skill in the art at the time of the invention, motivated to improve the signal and error performance, would combine the art of Prentice, and so the claim is rejected.

18. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent No. 5726991, in view of Chao et al., U.S. Patent No. 6671847 as applied to Claim 1 above, and further in view of Semyon Berkovich, U.S. Patent No. 5369755. The claim limits Claim 1 to transmitting the signal as a multi-bit signal (two bits of information on one conductor). In an analogous art, Berkovich provides for multi-bit data to be transmitted (column 2 lines 7-10) using prior art called content induced transaction overlap (column 1 lines 15-67). An advantage, as in column 2 lines 34-35, is data compression, and one with ordinary skill in the art at the time of the invention, motivated to improve data compression, would combine Berkovich with Claim 1, and so this claim is rejected.

19. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent No. 5726991, in view of Chao et al., U.S. Patent No. 6671847 as applied to Claim 1 above, and in view of Foland et al., U.S. Patent No. 5761212 as applied to Claim 16 above, and further in view of Philip R. Couch, U.S. Patent No. 4475210. The claim limits Claim 16 to constructing a waveform based on the comparison. A circuit used for the purpose of evaluating signal quality is taught by

Couch (column 1 lines 1-8), and presents a waveform for viewing in the form of an "eye-diagram". An advantage to this invention is to predict error rates, according to column 1 lines 25-33. One with ordinary skill in the art at the time of the invention, motivated to provide such a visual aid to predict error rates, would combine the references above, and so the claim is rejected.

20. Claims 20-22, 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent No. 5726991, in view of Chao et al., U.S. Patent No. 6671847 as applied to Claim 1 above, in view of Foland et al., U.S. Patent No. 5761212 as applied to Claim 19 above, and further in view of Johnson et al., U.S. Patent No. 6606041. The Claims 20-22 limit Claim 19 to a common medium being a data line, an address line, and a control line. In an analogous art, Johnson et al. uses a recurring (pseudo-random) pattern to drive data, address, and control lines (column 2 lines 61-67, column 3 lines 1-67, column 4 lines 1-62) in a memory test environment, citing an improved calibration result (column 1 lines 5-10). The examiner notes here that Claims 24-26 are dependent on claim 23 but are worded the same as Claims 20-22, and so, the examiner has taken the liberty to similarly reject Claims 24-26 in view of Claim 23. As for Claim 27, which is dependent also on the same Claim 23, this claim uses a common medium. And Claims 28-30, based on the same claim, also use the data, address and control lines of Johnson et al. in the optimization of the circuit. One with ordinary skill in the art at the time of the invention, motivated by Johnson et al. to improve calibration results, would combine all references, and so the claim is rejected.

21. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent No. 5726991, in view of Chao et al., U.S. Patent No. 6671847 as applied to Claim 1 above, and in view of Foland et al., U.S. Patent No. 5761212 as applied to Claim 18 above, and further in view of Komatsu et al., U.S. Patent No. 6631486. This claim, being dependent on claims 18 and 1, is interpreted by the examiner to mean that one medium is used for data output, and one is used for the repeating pattern. In an analogous art, Komatsu et al. uses such a configuration (see Fig.1 24, and Fig.3 34), and discloses the advantage of being able to test at high frequencies (column 2 line 1-62). Based on the examiner's interpretation of the claim, and although the examiner does not see any reference to this capability in the disclosure, and in view of the motivation and reference of Komatsu et al. to test at high frequencies, the claim is rejected based on combining the references.

22. Claims 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent No. 5726991, in view of Chao et al., U.S. Patent No. 6671847 as applied to Claim 1 above, and in view of Maddux et al., U.S. Patent No. 6421801 as applied to Claim 35 above, and further in view of Johnson et al., U.S. Patent No. 6606041. The claims limit the receiving of data by way of a 1st and a 2nd medium. Johnson et al., outlines such an arrangement in FIG.1 and column 4 lines 25-53. And in view of the motivation of Johnson previously noted in Claim 20 above, the claims are rejected.

23. Claims 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent No. 5726991, in view of Chao et al., U.S. Patent No. 6671847 as applied to Claim 1 above, and further in view of Foland et al., U.S. Patent No. 5761212 as applied to Claim 5 above, and further in view of Sakoda et al., U.S. Patent No. 6230022 as applied to Claim 6 above. The claims specify two distinctly differing parameter applications with the objective of evaluating and optimizing signals by comparing at the receiver. Claims 5 and 6 above are examples of a 1st and a 2nd parameter application, and one with ordinary skill in the art at the time of the invention, motivated as outlined in Sakoda et al. and Foland et al., would have found it obvious to combine the two references with Claim 1 as stated above, and so the claims are rejected.

24. Claims 42 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent No. 5726991, in view of Chao et al., U.S. Patent No. 6671847 as applied to Claims 1 and 41 above, and further in view of Johnson et al., U.S. Patent No. 6606041.

As per Claim 42:

Dependent on Claim 41 above, this claim limits the method to optimizing repeatability by adjusting a parameter. Johnson et al. et al. teaches this task in the Abstract, and in view of the motivation for Johnson et al. above, this claim is rejected.

As per Claim 43:

Dependent on Claim 1 above, the claim limits the comparing of transmit to receive to occur at system start up. Johnson et al., in column 1 lines 34-39 teaches this feature, and in view of the previous motivation for Johnson, this claim is rejected.

25. Claims 44, 45, 47 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al., U.S. Patent No. 5726991, in view of Chao et al., U.S. Patent No. 6671847 as applied to Claim 1 above, and further in view of Jalali et al., U.S. Patent No. 6154659.

As per Claim 44:

Dependent on Claim 1 above, the claim limits the comparing of transmit to receive to occur at the time of an error detection. Jalali et al., in the Abstract teaches such a feature, wherein after detecting a failure of signal-to-noise at the receiver, a parameter is passed back to the transmitter in order to adjust power, and in column 5 lines 30-39 recites the advantage of better performance to this feature. One with ordinary skill in the art at the time of the invention, motivated to provide better performance from a transmitter, would combine the references, and so the claim is rejected.

As per Claim 45:

This claim is similar to Claim 44 in that the occurrence of this type of testing is occasional. The examiner interprets this in that the same initiation of a power adjustment feedback order as in Claim 44 above by the receiver may occur on an occasional basis. In other words, the time between separate requests by the receiver

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may be minutes, or even hours apart, depending on many variable factors. And, in view of the motivation of Claim 44 above, this claim is rejected.

As per Claims 47 and 48:

Based on Claim 1, these claims limit the transmit and receive units to being located external to each other. In Jalali et al., this is taught also within the Abstract, wherein a receiver senses the need for a change, and requests via the medium, a parameter change in the transmitter, each unit being separated by the medium. In view of the motivation previously given for Jalali et al., the claims are rejected.

Allowable Subject Matter

26. Claims 49-54, 57-60, 77, 78, 80-84, 86-88, 90 and 92 are allowed.

The Claims 49-54, 57-60, 77, 78 and 80-82 are allowable because the applicant has introduced the limitations of Claims 55, 56 and 79, which were previously determined to be allowable by the examiner in a prior office action.

The Claims 83, 84 and 86-88 are allowable because the applicant has introduced the limitations of Claim 85, which was previously determined to be allowable by the examiner in a prior office action.

The Claim 90 is allowable because the applicant has introduced the limitations of Claim 55, which was previously determined to be allowable by the examiner in a prior office action.

The Claim 92 is allowable because the applicant has introduced the limitations of Claim 67, which was previously determined to be allowable by the examiner in a prior office action.

Conclusion

Applicant's amendment necessitated the new grounds of rejection presented in this Office Action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Trimmings whose telephone number is (571) 272-3830. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John P Trimmings
Examiner
Art Unit 2138

jpt



GUY LAMARRE
PRIMARY EXAMINER